

### **REMARKS/ARGUMENTS**

In the Office Action of April 24, 2006 claims 1-23 were identified as pending. Claims 1, 4-6, 8, 9, 12-20, 22, and 23 are amended herein. Claims 2, 3, 7, 10, 11, and 21 have been cancelled. Additionally, new claims 24-28 are presented herein. Support for such amendments are discussed below.

#### **Amendments to the Specification**

The Examiner noted that the trademarks referred to in the application must be capitalized and accompanied by the generic terminology. Accordingly, page 4, lines 20-25 of the application is amended herein to capitalize all referenced trademarks, provide the generic terminology of all referenced trademarks, and provide the full name of the companies whose trademarks are referenced. Additionally, page 4 lines 20-25 of the application has been amended herein to correct a minor typographical error. For the convenience of the Examiner enclosed with this Amendment are the web page printouts to confirm the generic technology that has now been added as requested. No new matter has been entered by this amendment.

#### **Amendments to the Claims**

Independent claims 1 and 18 are amended herein to recite a coating comprising polymer particles “selected from the group consisting of acrylic polymers, polyacrylates, polyacrylamides, polyacrylic acids, and copolymers thereof.” Support for this amendment may be found, e.g., at paragraph [0021] of the published application, which recites that “[c]omponent 1 may be an acrylic polymer particle, preferably an anionic acrylamide polymer powder, an

acrylate polymer, and co-polymers of polyacrylamides, polyacrylates, and polyacrylic acids....”

Accordingly, no new matter is believed entered by this amendment.

Independent claim 1 is also amended herein to recite a coating comprising water, “wherein said water hydrates and swells said polymer particles.” Support for this amendment may be found, e.g., at paragraph [0022] of the published application, which recites that “[u]pon hydration, the viscosity of Component 1 increases to form a gel like substance. Typical properties of Component 1 include...the fact that the polymer chains relax and swell upon hydration.” In addition, support for this amendments may be found, e.g., at paragraphs [0025]-[0026] of the published application, which recite that “[a]s Component 1, for example, the acrylic particle powder, becomes hydrated, the swollen particles greatly limit mobility...the combined water and swollen Component 1 particles are very effective in preventing mobility and access to controlled sites....” Accordingly, no new matter is believed entered by this amendment.

Independent claim 1 is further amended herein to recite that the polymer particles’ mean particle size may range between about 0.01 mm to 0.5 mm. Support for this amendment can be found at paragraph [0023] of the published application. In addition, support can be found in cancelled dependent claim 11 which recited the use of a mean particle size from about 0.01 mm to about 0.50 mm. Furthermore, claim 1 has been amended to recite that it is directed at an anti-traction material. Support can be found throughout the specification, and, e.g., at paragraph [0020] of the published application which recites that “[a]n anti-traction material composition may be formed of two components...”.

Minor amendments were made to dependent claim 4 to clarify that the coating, after drying, is capable of being restored to an anti-traction material upon application of additional water. No new matter has been entered.

Minor amendments were made to dependent claims 5, 6, 12, 13, 14, 16, 17, 19 and 20 to clarify antecedent basis. No new matter has been entered.

Minor amendments were made to dependent claims 8 and 22 to clarify that the coating is capable of being dispensed on and adhering to various surfaces. No new matter has been entered.

Minor amendments were made to dependent claim 9 to clarify that the coating may further comprise additives selected from the group consisting of malodorants, chemicals, colorants, and mixtures thereof. No new matter has been entered.

Minor amendments were made to dependent claim 15 to correct dependency and clarify antecedent basis. No new matter has been entered.

Dependent claim 23 is amended herein to recite that the coating may be applied to surfaces including "one or a plurality of concrete, tile, asphalt, grass, wood, soil, floors, walkways, roads, runways, windows, doorknobs, railings, steps, stairways, entryways, walls, weapons, steering columns, or tools." Support may be found, e.g., at paragraphs [0026], [0030], [0031], [0043], [0044], [0054], and [0055] of the published application. No new matter has been entered.

New dependent claim 24 recites the same subject matter as dependent claim 23 but is configured to depend upon dependent claim 8. No new matter has been entered.

New dependent claims 25 and 27 recite that the polymer particles may be in anionic form. Support may be found at paragraph [0021] of the published application. No new matter has been entered.

New dependent claim 26 recites that the coating may further comprise additives selected from the group consisting of malodorants, chemicals, colorants, and mixtures thereof. Support may be found at paragraph [0028] of the published application. No new matter has been entered.

New dependent claim 28 recites that the polymer particles' mean particle size may range between about 0.01 mm to 0.5 mm. Support may be found at paragraph [0023] of the published application. In addition, support can be found in cancelled dependent claim 11 which recited a particle size range of between about 0.01 mm to 0.5 mm. No new matter has been entered.

Accordingly, claims 1, 4-6, 8, 9, 12-20, 22-28 are presented herein for reexamination and reconsideration.

#### **Rejections Under 35 U.S.C. § 112**

Claims 1-23 were rejected under 35 U.S.C. § 112, first paragraph. Independent claims 1 and 18 have been amended herein to recite a coating comprising polymer particles "selected from the group consisting of acrylic polymers, polyacrylates, polyacrylamides, polyacrylic acids, and copolymers thereof..." Support for this amendment was noted above. Applicants respectfully submit that the specification provides enablement for the polymer particles referenced in the claims and that the rejections under 35 U.S.C. § 112 should now be withdrawn.

#### **Rejections Under 35 U.S.C. § 102/103**

Claims 1-17 stand rejected under 35 U.S.C. § 102 as being anticipated by Yagi et al (5,258,424). Alternatively, claims 1-17 stand rejected under 35 U.S.C. § 103 as being obvious over Yagi et al (5,258,424).

Yagi is entitled "Aqueous Coating Composition Capable of Forming a Coating with Improved Moisture Permeability." Yagi teaches an acrylic resin emulsion having an average

particle diameter of 0.05 to 5 $\mu$ . Yagi further teaches hydrophilic microparticles having an average diameter of 0.01 to 3 $\mu$ . Significantly, Yagi portrays such average particle diameter ranges as being essential to achieve the object of the invention. The Examiner's attention is respectfully directed to column 3, lines 40-51 and column 4, lines 14-27, reproduced below for the Examiner's convenience:

"The present water dispersible acrylic resin emulsion **must** have an average particle diameter of 0.05 to 5 $\mu$ , preferably 0.1 to 3 $\mu$ . This is because if the average particle diameter is less than 0.05 $\mu$ , a larger amount of surfactant is required for the stabilization of emulsion which is not desired because the resulting coating would have increased water absorption power and hence inferior water resistance. **When the average particle diameter exceeds the upper limit of 5 $\mu$ , it is not possible to obtain a uniform coating and the resulted coating is unsuitable as a top coat for concrete structures in respect to gloss and durability.**" (emphasis added).

"Such microparticles **must** have an average diameter of 0.01 to 3 $\mu$ , preferably 0.03 to 1 $\mu$ , and must be of hydrophilic nature to the extent sufficient to be uniformly and stably dispersed in an acrylic resin emulsion. If the average diameter of said microparticles is less than 0.01 $\mu$ , the surface area of these microparticles become too large, resulting in an undue failure in the particle stability itself. **If the average diameter exceeds the limit of 3 $\mu$ , the surface area of these microparticles will become too small, resulting the shortage of amount of hydrophilic functional groups in the system and hence the objects of the present invention cannot be allowed.**" (emphasis added).

As the Examiner may appreciate, it is possible to convert Yagi's disclosed particle diameter ranges from micrometers to millimeters for comparison with the particle diameter range of the present invention. See Table 1.

**Table 1**

Average Particle Diameter Ranges of Yagi (micrometers)	Average Particle Diameter Ranges of Yagi (millimeters)	Mean Particle Size Range of the Present Invention [Claim 1] (millimeters)
0.05 to 5	0.00005 to 0.005	0.01 to 0.5
0.01 to 3	0.00001 to 0.003	

As indicated in Table 1, the particle size range of the present invention is not believed disclosed or suggested by Yagi. Further, Yagi unequivocally teaches away from exceeding the “upper limit” of 0.005 mm, which renders the coating “not uniform” and “unsuitable.” Yagi cautions that exceeding even 0.003 mm will result in a microparticle surface area that is too small, causing a shortage of hydrophilic functional groups “and hence the objects of the present invention cannot be allowed.” Furthermore, as should be readily apparent, Yagi does not teach or suggest anything regarding the development of an anti-traction material. Applicants therefore submit that Yagi’s teachings including the teachings regarding the feature of particle size would not render obvious the various combined features of the claims as presented herein and it is respectfully submitted that independent claim 1 and all corresponding dependent claims are not taught, suggested, or rendered obvious by Yagi.

Claims 18-23 stand rejected under 35 U.S.C. § 102 as being anticipated by Roberts, Sr. et al (5,834,553). Alternatively, claims 18-23 stand rejected under 35 U.S.C. § 103 as being obvious over Roberts, Sr. et al (5,834,553).

Roberts is entitled “Polymeric Composition for Damproofing Walls.” Roberts teaches a three (3) component composition comprising a “polymer based component,” a solvent, and a processing oil. Upon examination Roberts’ polymers are limited to polystyrene, styrene based random copolymers, or styrene based block copolymers. No other polymers are taught or disclosed. Independent claim 18 as amended herein recites a coating comprising polymer particles “selected from the group consisting of acrylic polymers, polyacrylates, polyacrylamides, polyacrylic acids, and copolymers thereof....” Support for this amendment was noted above. It is therefore believed that claim 18 and all dependent claims now recite subject matter that is not disclosed or suggested by Roberts.

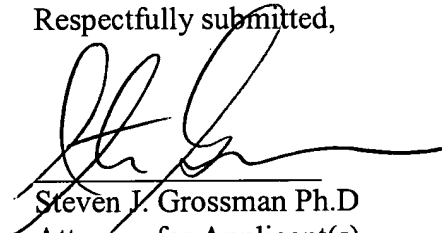
**Double Patenting**

Applicants also note the provisional nonstatutory obviousness-type double patenting rejection in view of claims 1-8 of U.S. Appl. No. 10/684,427. Accordingly, Applicants are prepared to file a terminal disclaimer herein to overcome said rejection upon the indication of allowable subject matter.

Having overcome all outstanding rejections it is respectfully submitted that the application is now in condition for allowance. Early and favorable review is respectfully solicited.

In the event that there are any fee deficiencies, or additional fees are payable, please charge, or credit any overpayment to, our Deposit Account No. 50-2121.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Steven J. Grossman', is written over a horizontal line.

Steven J. Grossman Ph.D  
Attorney for Applicant(s)  
Reg. No. 35,001

Grossman, Tucker, Perreault & Pfleger, PLLC  
55 South Commercial Street  
Manchester, New Hampshire 03101  
Tele: 603.668.6560



## **APPENDIX**

To the Amendment dated July 14, 2006  
In reply to the Office Action of April 24, 2006

US APPLN SERIAL NO.: 10/727,615

DOCKET: 111440.02





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MSDS: 0005488  
Date: 09/07/2005  
Supersedes: 04/29/1998

## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **SUPERFLOC® A-120 Flocculant**  
Synonyms: None  
Chemical Family: Anionic polyacrylamide polymer  
Molecular Formula: Polymer  
Molecular Weight: Polymer

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WEST PATERSON, NEW JERSEY 07424, USA  
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.  
EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC: 1-800/424-9300. Outside the USA and Canada call 1-703/527-3887.

® indicates trademark registered in the U.S. Outside the U.S., mark may be registered, pending or a trademark. Mark is or may be used under license.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

#### OSHA REGULATED COMPONENTS

No Permissible Exposure Limits (PEL/TLV) have been established by OSHA or ACGIH.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

##### APPEARANCE AND ODOR:

Color: white  
Appearance: solid  
Odor: odorless

##### STATEMENTS OF HAZARD:

IMPORTANT! SPILLS OF THIS PRODUCT ARE VERY SLIPPERY WHEN WET

##### POTENTIAL HEALTH EFFECTS

###### EFFECTS OF EXPOSURE:

The estimated acute oral (rat) LD50, acute dermal (rabbit) LD50 and 4-hour inhalation (rat) LC50 values for this material are >2,500 mg/kg, >10,000 mg/kg and >20 mg/L, respectively. Direct contact with this material may cause minimal eye and skin irritation.

### 4. FIRST AID MEASURES

#### Ingestion:

Material is not expected to be harmful by ingestion. No specific first aid measures are required.



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MSDS: 0006913  
Date: 08/12/2004  
Supersedes: 10/29/1998

## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **SUPERFLOC® A-130 Flocculant**  
Synonyms: None  
Chemical Family: Anionic Polyacrylamide  
Molecular Formula: Polymer  
Molecular Weight: Polymer

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WEST PATERSON, NEW JERSEY 07424, USA  
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.

EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC: 1-800/424-9300. Outside the USA and Canada call 1-703/527-3887.

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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

#### OSHA REGULATED COMPONENTS

No Permissible Exposure Limits (PEL/TLV) have been established by OSHA or ACGIH.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

##### APPEARANCE AND ODOR:

Color:	off white
Appearance:	granular
Odor:	odorless

##### STATEMENTS OF HAZARD:

IMPORTANT! SPILLS OF THIS PRODUCT ARE VERY SLIPPERY WHEN WET

#### POTENTIAL HEALTH EFFECTS

##### EFFECTS OF EXPOSURE:

This product has an acute oral (rat) LD50 and an acute dermal (rabbit) LD50 of >2.5 g/kg and >10.0 g/kg respectively. The 4-hour inhalation LC50 (rat) is estimated to be greater than 20 mg/L. This product produced no eye irritation and no dermal irritation during primary irritation tests in rabbits.

### 4. FIRST AID MEASURES

#### Ingestion:

Material is not expected to be harmful by ingestion. No specific first aid measures are required.



MSDS: 0007786  
Date: 12/07/2005  
Supersedes: 07/01/1997

## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **SUPERFLOC® A-150 HMW Flocculant**  
Synonyms: None  
Chemical Family: Anionic Polyacrylamide  
Molecular Formula: Polymer  
Molecular Weight: Polymer

CYTEC INDUSTRIES INC., FIVE GARRET MOUNTAIN PLAZA, WEST PATERSON, NEW JERSEY 07424, USA  
For Product Information call 1-800/652-6013. Outside the USA and Canada call 1-973/357-3193.  
EMERGENCY PHONE: For emergency involving spill, leak, fire, exposure or accident call CHEMTREC: 1-800/424-9300. Outside the USA and Canada call 1-703/527-3887.

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No Permissible Exposure Limits (PEL/TLV) have been established by OSHA or ACGIH.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

##### APPEARANCE AND ODOR:

Color:	off white
Appearance:	solid
Odor:	odorless

##### STATEMENTS OF HAZARD:

IMPORTANT! SPILLS OF THIS PRODUCT ARE VERY SLIPPERY WHEN WET

#### POTENTIAL HEALTH EFFECTS

##### EFFECTS OF EXPOSURE:

Acute oral (rat) and dermal (rabbit) LD50 values are estimated to be greater than 5,000 mg/kg and greater than 2,000 mg/kg, respectively. The 4-hour inhalation LC50 (rat) value is estimated to be greater than 20 mg/L. Direct contact with this material may cause minimal eye and skin irritation.

### 4. FIRST AID MEASURES

#### Ingestion:

Material is not expected to be harmful by ingestion. No specific first aid measures are required.

# Ciba<sup>®</sup> MAGNAFLOC<sup>®</sup> 1011

## Anionic flocculant

**Description** **MAGNAFLOC<sup>®</sup> 1011** is a very high molecular weight anionic polyacrylamide flocculant supplied as a free flowing granular powder.

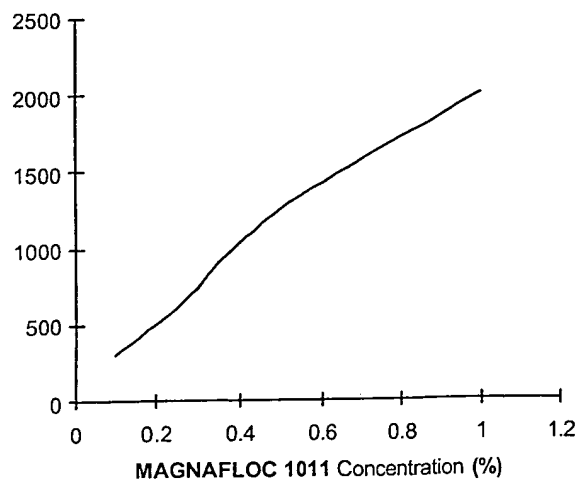
**Principal Uses** **MAGNAFLOC<sup>®</sup> 1011** has found application in a wide variety of mineral processing operations including the following:

1. Base metal sulphide and oxide concentrates thickening and filtration.
2. Sedimentation of coal tailings.
3. Sedimentation of coal fines.
4. Filtration of coal fines.
5. Deep cone thickening of coal fines.
6. Sedimentation of fine sands and clays.
7. Tailings dewatering.
8. Iron ore tailing.
9. Clarification of acid leach pulp (copper).
10. Sulphur extraction.

Dosage depends upon the application but normally lies in the range 2 g to 200 g per tonne of dry substrate flocculated.

<b>Typical Properties</b>	Physical Form	Off-white granular powder
	Particle Size	98% < 1000 $\mu\text{m}$
	Bulk Density	0.7g/cm <sup>3</sup>
	pH of 1% solution at 25°C	6.0
	Viscosity at 25°C	See graph and table

**Apparent Viscosity-Concentration Graph**  
(Fann Viscometer-Shear Rate 5.11 sec<sup>-1</sup>)



**Application & Storage** Recommended solution concentrations:

Stock solution	0.25 - 0.5% max
Feed solution	0.025 - 0.1% max

Recommended storage periods:

**Shelf Life**

2 years from receipt of goods

Stock solution 1-2 days

Storage of polymer should be in a cool, dry place.

Details on preparation and feeding can be obtained from a Ciba Specialty Chemicals Representative

Solution viscosity data (Fann viscometer – 25°C - solvent - deionised water)						
MAGNAFLOC® 1011 concentration (%)	Shear rate (sec <sup>-1</sup> )					
	5.11	10.22	170	340	511	1022
	Viscosity (cP)					
1.0	1997	1325	192	105	75	65
0.5	1248	725	102	75	67	48
0.25	606	350	48	41	37	20
0.10	300	150	27	20	17	12

**Shipping and Handling**

**MAGNAFLOC® 1011** is supplied in 25kg nett plastic bags shrinkwrapped onto a pallet suitable for export shipment. The product can also be supplied via intermediate big bags or bulk tanker. Specific details of bag and tanker sizes can be obtained on request.

Corrosivity towards most standard materials of construction is low, but aluminium and galvanised equipment should be avoided.

**Technical Service**

Advice and assistance in the running of laboratory and plant tests to select the correct flocculant and determine the best application is given by representatives of Ciba Specialty Chemicals, who are experienced in mineral processing applications.

**Health and Safety**

**MAGNAFLOC® 1011** exhibits a very low order of oral toxicity and does not present any abnormal problems in its handling or general use.

Detailed information on handling and any precautions to be observed in the use of the product(s) described in this leaflet can be found in our relevant Health and Safety information sheet.

**Important**

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® indicates a registered trademark

™ indicates a trade mark

For further information, contact your regional office, details on : [www.cibasc.com](http://www.cibasc.com), alternatively e.mail: [extractives@cibasc.com](mailto:extractives@cibasc.com)